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ABSTRACT

A modified iterative factor analytic method was applied to item responses of 346 male students in four community colleges in order to construct three experimental scales for the measure of motivation. A fourth scale, which appears to be a measure of goal-deficiency, was also developed. The four scales--tentatively identified as Intrinsic Motivation (IM), Self Enhancement (SE), Person Orientation (PO), and Goal Deficiency (GD)--were found to be relatively independent of one another and to have a high degree of reliability with respect to test-retest stability. Provisional norms, based on 649 females and 650 males, were established. Item content and correlates of the scales suggest that the four new experimental scales should have special relevance for description and analysis of motivation in relation to work and education. (Author)

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CONSTRUCTION OF AN EXPERIMENTAL MEASURE OF MOTIVATION

Harry J. Caughren, Jr., Ph.D.
Merritt College

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HEALTH, EDUCATION, AND WELFARE

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TABLE OF CONTENTS

Background for the Study 1

Research Method. 9

Procedure 9
Subjects. 10
Materials 10
Specific Methodology 11
Criteria for Item Selection 12
Analysis. 12

Findings 12

Test-Retest Reliability 14
Normative Data. 15
Independence of the Scales. 15
Homogeneity of the Scales 16
Concurrent and Other Validational Data. 16
Status of Current Research. 23

Implications of the Findings 23

References 26

Appendixes 29

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BACKGROUND FOR THE STUDY

The multitude of tests and measurements used, more or less effectively, in four-year institutions of higher learning and in clinical practice are not well suited for administration in what is becoming this nation's most rapidly growing segment of higher education--the community college.

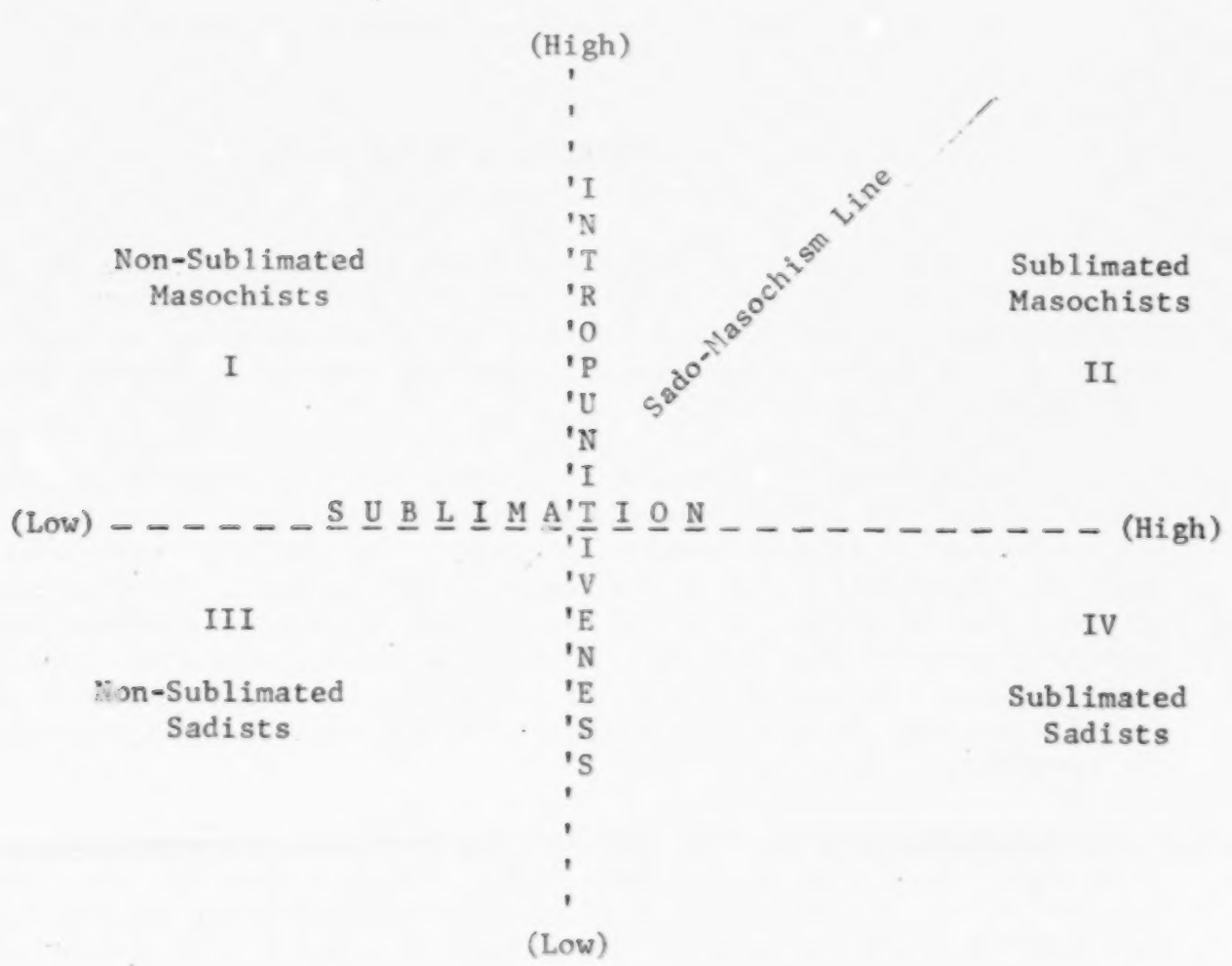
The inappropriateness of present-day instruments for use with community college students--many of whom are neither academically inclined nor academically talented--seems obvious. The reading level required of students administered these instruments, for example, is often inappropriate. Few of these tests and inventories have been standardized on community college populations. But the problem goes deeper than this: simply, these instruments were not constructed for the specific purpose of relating test data to the educational and counseling objectives of the community colleges.

Acknowledging that the testing needs of the community colleges seems especially pressing, Seibel (1967) makes a plea for the measurement profession to concern itself more with the construction of differential guidance tests in the area of assessing non-intellective characteristics.

Information on such factors as motivation, creativity, persistence, interests, values, attitudes, and manual and artistic skills, he states, have relevance not only to a student's choice of a particular educational or vocational goal, but also to the degree of success he might expect in the particular venture he chooses.

Accordingly, the study described in this report represents a concentrated research effort in the area of measurement of motivation of community college students.

The historical beginnings of this research can be traced back to an unpublished paper by the investigator (Caughren, 1965). This paper dealt with a formulation of an aspect of personality based on a two-way interaction involving two selected personality variables, namely, "Sublimation" and "Intropunitiveness." The model, which seemed to make sense for purposes of general analysis and description of personality, will be only briefly alluded to in this report. It is sufficient to outline the main features of the schema, which are graphically shown below:



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From the dimensional interaction standpoint, four combinations of high and low scores on the two main personality dimensions (i.e., intropunitiveness and sublimation) exist: (a) scoring high on intropunitiveness, but low on sublimation (falling, therefore, in quadrant I, the combination which identifies the Non-Sublimated Masochist); (b) scoring high on both dimensions (quadrant II, the Sublimated Masochist); (c) scoring low on both dimensions (quadrant III, the Non-Sublimated Sadist); and (d) scoring low on intropunitiveness, but high on sublimation (quadrant IV, the Sublimated Sadist).

The prototypic subject in each quadrant was described, and a series of testable hypotheses (nine, in all) derived from the model were outlined. Most of these hypotheses were in the following domains: academic achievement, choice of college major, occupational choice, and counseling-therapy. The hypotheses were subsumed under the stated general hypothesis, namely, that personality structure, categorized according to dimensions which involve the direction of one's aggressive tendencies and also the degree to which his sexual energies are sublimated, is significantly related to various domains of human organismic behavior.

Because the model described above seemed too "clinical" and somewhat less related to the more "normal," everyday Problems confronted in a community college than seemed desirable, a second schema was proposed (Caughren, 1968) for a three-dimensional classification of motivation. It is the explication of this typology of motivation and the construction of the scales for the measure of the variables upon which the revised model is built that is the main concern of this report.

The rationale for the present study was based on a background of psychological literature which will be reviewed briefly and follows next in order. Although a scale was built for a measure of "intropunition," this dimension does not relate to the three dimensional classification of motivation proposed and, therefore, will not be reviewed.

Review of the Literature

A review of the literature supports the plausibility of the following concepts:

A. The individual's need to sublimate--to direct his energies into intellectual, cultural, humanitarian outlets--accounts for some of the highest accomplishments of mankind.

B. Status (seeking) needs--more specifically, the need for self-enhancement, prestige, success self-esteem--rank high in the need-hierarchy of some individuals, but not others.

C. The degree to which individuals are "person-directed" greatly influences the kinds of decisions likely to be made in various areas of human behavior.

Sublimation. Freudian theory holds that the direct expression of sexual and aggressive instincts is transformed into apparently non-sexual and non-aggressive forms of behavior. Similarly, work is thought to offer an outlet for the hostile, aggressive drive which is a major source of psychic energy; work is an effort to master the environment; it is carried on "against" something, or to surmount, solve, or control something.

One of the distinguishing marks of the sublimated individual is his ability to enjoy work, an ability which derives from the sense of achievement in the job itself. The work in itself seems rewarding. Centers (1948) stressed the high value placed on "interesting work" and "self expressed" need of workers at the higher occupational levels. Herzberg and his associates (1959) concluded that job satisfaction results primarily from intrinsic job factors while job dissatisfaction results primarily from extrinsic factors. A study by Centers and Bugental (1966) interprets findings in terms of Maslow's (1954) need-hierarchy by concluding that individuals in lower-level occupations are more likely to be motivated by lower-level needs (pay, security, etc.) because these are not sufficiently gratified to allow higher-order needs (the self-fulfillment possible in the job itself) to become prepotent.

In many ways, the concept of sublimation is similar to Maslow's concept of "self-actualization." Growth-oriented needs which seem especially related to the concept of sublimation and which Maslow believes are characteristic of the self-actualized person--to list but a few--are these: centered on problems rather than self; identification with the human race; acceptance of self; independent and self-contained; democratic attitudes and values; and creativeness.

The important work of Barron (1963), which sheds light on the relationship between creativity and psychological health, seems especially pertinent to our review. Only a person who can live with complexity and contradiction, Barron says, and who has some confidence that order lies behind what appears to be confusion, is capable of becoming a creative person.

Besides finding that creative individuals not only respect the irrational in themselves, but court it as a source of novelty, Barron lists the additional following characteristics: especially accurate observations (telling themselves the truth); vivid expressions of part-truths; seeing things as others do, but also as others do not; independent in their cognition; ability to hold many ideas at once, and to compare more ideas with another--hence to make a richer synthesis; exceptional fund of psychic and physical energy; more complex lives; in contact with the life of the unconscious; exceptionally broad and flexible awareness of themselves. Barron (1958) concluded, in almost curious contrast, that the creative person is both more primitive and cultured, more destructive and more constructive, crazier and saner, than the average person.

Rogers' (1961) concept of the "fully-functioning" person suggests aspects similar to the sublimation construct: as increasing awareness, on the part of the individual, to experience; increasing existential living; an increasing trust in one's organism.

Thus, based on this only brief review of theory and research cited, the inclusion of a dimension of sublimation in a classification of human motivation seems justified.

Socio-Economic Status. Perusal of relevant literature indicates that one non-cognitive factor which, in a general way, has been found to influence the educational (Berdie, 1953) and occupational (Centers, 1948, 1961; Hollingshead, 1949) distributions of our population is family and social status. This factor is identified here, for descriptive purposes, as socio-economic status; and, in our typology of motivation to be presented later, it is a prestige or status (seeking) dimension instigated from social and economic conditions of the family.

It appears that socio-economic status has fairly clear influences on determining various kinds of behavior. Galler (1951), for example, has shown that upper-class boys and girls tend to choose an occupation on the basis of the father's occupation more often than do children from the lower-classes. Berdie (1953) indicated that, second only to the cultural level of the home, socio-economic factors were most strongly related to the decision of the high school graduate to go to college. That school achievement correlates positively with socio-economic status has been reported by Gough (1956).

Clark (1960) and Thomte (1961) have shown that relatively more students in vocational courses come from low-status backgrounds than do students in transfer courses or four-year institutions. Several studies (Davidson & Anderson, 1937; Miller & Form, 1951) have indicated significant relationships exist between status needs and occupational mobility, while a recent investigation (Malinovsky & Barry, 1965) reported socio-economic status to be a crucial variable in job satisfaction. Friend and Haggard (1948) reported on the influence of family background in relation to work adjustment and concluded that antagonism for the mother discriminates between the Highs and Lows (with respect to vocational adjustment) on both adjustment and achievement, while antagonism for the father, which makes a vast difference in adjustment, seemed to influence achievement very little.

Hollingshead (1949) gave evidence that the work a man does tells more about him that is significant than does any other single item of information. Super (1957) concluded that the person's occupation is the principal determinant of social status. Syngg and Combs (1949) theorized that a person's need for self respect and esteem is so great that it may be said man's greatest need is the enhancement and preservation of the self concept. Maslowian theory, with special reference to self-esteem, is inevitably cited in discussions pertinent to the prestige needs of human beings.

Person-Orientation. Although personality theorists generally agree that there is no personality apart from its relations with other people, some place heavy emphasis on early childhood experiences, while others stress the importance of progressively higher levels of interpersonal development from birth onward.

The widely-known introversion-extroversion typology of Jung need not be reviewed here in detail. In brief, the introvert was described as subjective in orientation; as ordinarily interested in ideas, imagination, and inner life. The extrovert was described as primarily interested in social activities and practical affairs; as having an orientation directed outward to the objective world of things and events. Research evidence, however, does not support the simple introvert-extrovert dichotomy, but indicates instead that people are distributed all along the introversion-extroversion dimension with most around the middle.

Sullivan (1953) placed great stress on social determinants of personality. He viewed personality development as an orderly sequence of interpersonal events. Early experiences of the child determines how the individual will later tend to approach and perceive other interpersonal situations. Personality develops continuously as new kinds of interpersonal situations arise.

Certain aspects of the theories of both Jung and Sullivan have been combined by Roe (1957), who has related personality development to occupational choice theory. She suggests that occupational personalities exist, and that the kinds of differences found in various groups seem rooted in childhood experiences. An early-appearing differentiation in the interpersonal life experiences of the individual tends to produce a "person-directed" vs. "non-person-directed" orientation. The degree of this orientation might well predispose toward the selection of different occupational fields.

A study by Roe and Siegelman (1964) indicated, for men, in fields as diverse as engineering and social work, that person orientation is related to the amount of affection and attention received from the parents in childhood. Although the hypothesis that personality pattern is related to occupation was supported, it was concluded that the relationship between personality and occupational choice is more complex than was supposed.

Even such a cursory review as given here supports the contention that the person-orientation dimension has relevance for a classification scheme concerned with motivation and personality.

Implications of the Literature to the Present Study

In sum, then: It appears that the literature reviewed supports a typology of motivation based on the interactions of motives in the areas described in the foregoing discussion.

More specifically, the present study was undertaken for the purposes of (1) developing three experimental subscales which purport to measure the variables of the proposed typology of motivation (shown below) and (2) studying certain properties of these new scales. A secondary aim was to build a scale for the measure of "intropunition," so that future research could be addressed also to the testing of hypotheses which have been, or could be, generated from the model based on the two-way interaction of the sublimation and "intropunitiveness" dimensions.

A Proposed Typology of Motivation

	High Sublimation		Low Sublimation	
High Socio-Economic Status	High Person Orientation (I)	Low Person Orientation (II)	High Person Orientation (III)	Low Person Orientation (IV)
Low Socio-Economic Status	High Person Orientation (V)	Low Person Orientation (VI)	High Person Orientation (VII)	Low Person Orientation (VIII)

Essentially the above schema is a triple classification of factorial design, with each factor (or dimension) represented by two levels--corresponding to a "high" need-level of the factor and to a "low" need-level. This method of representation produces, thereby, eight categorical subtypes of motivation possible theoretically. For example, Subtype II (characterized by high need-levels for sublimation and status--but low-level for "person-directedness") corresponds theoretically to the prototypic "creative disposition" individual; as another example, Subtype VII individuals are those who prefer much association with others, who have work-needs that are essentially extrinsically motivated, and who have relatively little need for prestige; and so on for the other subtypes of motivation. It is beyond the scope of this report to delineate in detail the motivational structure of the prototypic individual in each of the eight subtypes.

Research is needed to determine whether the typology is a meaningful tool for the analysis and description of motivation. Preliminary then, to such investigations, the present study was initiated to construct measures for variables of the typology proposed for use with students in community colleges.

RESEARCH METHOD

Procedure

Vernon (1964) proposed a number of characteristics which he believed a useful test should possess. A number of these characteristics, which are applicable to this study, have been rephrased so as to be appropriate to the motivation domain. They are listed below:

1. It should be a group test covering a limited number of variables, in order to yield fairly reliable scores in a brief time. The aim should be to provide a well-normed framework of major motives, rather than to pinpoint specific vocational or other preferences.

2. The items should be meaningful to, and give consistent results with, older secondary pupils and young adults of both sexes, say 15 to 24 years.

3. The variables should be chosen for general usefulness and the items formulated to cover them, rather than following Strong's empirical method of construction and standardization. While external criteria for item-selection could be applied to some variables, multiple keying should be avoided. A compromise would be necessary between independence or orthogonality of variables and tying them to important environmental "presses."

4. Esoteric or highly theoretical constructs (e.g., Cattell's "erg's") should be avoided.

5. Very high item-discrimination coefficients, or internal consistency correlations for each variable greater than 0.75 to 0.80, are unnecessary since they tend to reduce the breadth and validity of the variables.

6. External correlates and group differences in profiles should be sought.

The general procedure used in this study was to build scales, not by correlating items with a number of external criteria to yield a series of scoring keys (e.g., SBIB, MMPI, CPI), but rather to discover homogeneous items identified to measure each of the variables in the aforementioned two-way and three-dimensional classifications.

Subjects

For the various phases of this study the item-responses of 650 males and 649 females enrolled in four community colleges were analyzed.

Item-responses of 346 males were analyzed in order to construct the four new scales.

To produce the final scoring key for the scales, two separate samples of 182 males and of 195 females, respectively, were utilized in "purifying" the scales by rejecting items which had low averaged indices of internal consistency with total score.

Additional samples of subjects, not included in the sample used for the scales or for purposes of purifying the scales, were used to (1) compute test-retest reliability coefficients and (2) study the relationship between the scales and other scales of well-known inventories.

Finally, the samples described above were combined with others held out also for various purposes (study of the independence of the scales, split-half reliability study, etc.) to provide provisional norms.

Materials

The test author constructed a pool of items (in excess of 450) which, on an a priori basis, seemed suitable for allocation by judges into preliminary clusters. The items were extracted (with only minor revision) from the autobiographies of 176 students who had participated in an earlier study by the investigator (Caughren, 1965). Repetitious--and what appeared, on second thought, to be inappropriate--items were culled from the item pool to produce a 300-item mimeographed test booklet.

The items in the test booklet are assumed to be less productive of distorted or unpleasant emotional disturbances than items usually onstituting personality inventories. The items, furthermore, are thought not only to reveal stable self concepts but also to be appropriately worded and in the parlance of late adolescents and young adults.

Specific Methodology

Siegel (1956) successfully applied a modified iterative factor analytic technique to a biographical inventory for students. The procedure produced homogeneous subsets of items suitable for standardization for a group of male subjects. The success of Siegel's procedure suggests that the method might be applied within the area of measurement of motivation.

The specific procedure used, based on Siegel's technique, is as follows:

1. Six judges, working independently, allocated the 300 test items into preliminary "clusters." Each judge was provided (1) a deck of 300 3 X 5 cards on which items had been typed, one item per card; and (2) a set of instructions with description of the selected constructs (Appendix A).

(These clusters served as the starting point for the analysis. It was realized that the composition of each cluster could change, perhaps radically, after item analysis. An arbitrary criterion of 2/3rds agreement among the judges was adopted for assembling items into preliminary scales.)

2. Point-biserial correlation of each item with the total score on each of these preliminary clusters (Form A).

3. Reconstitution of the clusters on the basis of the correlations obtained at Step 2. (More specifically, the point-biserial coefficients--serving as indices of internal consistency--were used to reject items having low correlation with total score and to add items found to have high correlation.)

4. Recorrelation of each of the items with the total score on each of the reconstituted clusters. (Reconstitution was to be repeated until cluster stability was achieved.)

The procedure described above seeks to combine construct validity, as determined by clinical assessment, with statistical analysis of item content. In all, the scales were reconstructed four times on the sample of 346 males. The fifth (and final) reconstruction was obtained by purifying the scales on each of two separate samples: one of 182 males; the other, 194 females. For construction and purification of the scales, 7,200 point-biserial coefficients were calculated on an IBM-360 computer.

Criteria Used for Item Selection

The following criteria were used for item selection:

1. An item will be selected (or retained) for reconstitution if its t ratio is significant at the .001 level of of significance or beyond. (For df = 344: t = 3.291 = .001 level.)

2. The item must have highest correlation with that cluster for which it is selected for reconstitution.

3. An item having approximately equal correlation with another cluster will not be accepted for reconstitution of a scale.

4. The item may be selected (or retained) for only one of the four new experimental scales to be constructed.

Analysis

For the basic findings described in this report, the data were analyzed with respect to the following questions:

A. Are the scales stable over intervals of time test-retest)?

B. Are the scales relatively orthogonal or independent of one another?

C. How do the scales relate to other test data (CPI, GPI, MMPI, Edwards' Personal Preference Schedule) (concurrent validation)?

FINDINGS

Clinical judgment constituted the first form (Form A) of the scales--160 items assembled into the preliminary clusters on the basis of 2/3rds agreement among the judges (four out of six agreeing on an item with respect to both content and scoring direction--"true" or "false"). Table 1 shows the percent of agreement among the judges.

Table 1. Percent* of Inter-Judge Agreement on Items for Allocation of Items into Preliminary Clusters (Form A).

Judge	"A"	"B"	"C"	"D"	"E"	"F"
"A"		54	47	57	56	59
"B"			43	52	47	51
"C"				48	55	47
"D"					61	56
"E"						55

*In Table 1 the numbers (rounded off to two places, multiplied by 100 to remove the decimal, and percent sign removed) refer to the percent of agreement of judges had with one another. For example, Judge "A" agreed with Judge "B" on 54% of the 300 items, with respect to both item content and direction of scoring.

Mean percent of inter-judge agreement was calculated and found to be 52.5 percent, significantly different from chance (12.5%). Inter-judge reliability appears to have been adequate. Thus it appears that some confidence can be placed in the construct validity aspect of the scales under the clinical judgment phase of the construction procedure.

Each succeeding reconstitution of the scales by the statistical analysis of item content--except the final one, which produced the "purified" Form F--added more items than were rejected; in all, items added totaled 40 more than the number rejected, since the scales in their final form contain a combined total of 200 items.

Although it was fully recognized that the composition of each cluster might change after reconstitution, the statistical analysis of item content used for adding items and rejecting other from each cluster probably would have the effect of building in scale-subtlety. In addition to making the purpose of the scale developed less obvious, "subtle"items often have the salutary effect of broadening and enrichening an understanding of the construct being scaled.

The (final) Form F version of the scales is to be found in the appendixes (B, C, D, and E). The items of each scale have been grouped by the investigator, on a subjective basis, into what appears to be subclusters of each scale. The scoring direction for each item is indicated. An index of internal consistency was computed for each item by averaging (1) the coefficient the item had for the fourth reconstitution (Form E) with the 346 males used for the construction phase of the study, (2) the coefficient of the item in the purification sample of 182 males, and (3) the coefficient of the item in the purification sample of 195 females. Averaging coefficients obtained on sample differing with respect to size and standard deviation, especially, requires that caution be used in assessing the derived value of an item's discriminatory efficiency.

A word might be introjected here with respect to the difference of values of coefficients obtained by calculation of point-biserial correlations and biserial correlation coefficients. Guilford (1950) states that when one of the two variables in a correlation problem is a genuine dichotomy, or when it is doubtful that the dichotomous one stems from normal distribution, the appropriate type of coefficient to use is the point-biserial *r*.

Since the point-biserial *r* is not restricted to normal distributions in the dichotomous variable, it is much more generally applicable than is *r* biserial. Whenever there is doubt about computing *r* biserial, the point-biserial should be used. If *r* point-biserial were computed from data that actually justified the use of *r* biserial, however, the coefficient computed would be markedly smaller than *r* biserial obtained from the same data. Thus the indices of internal consistency computed for the items composing the newly constructed scales may underestimate the amount of correlation.

Test-Retest Reliability

The protocols of 56 subjects in two classes of psychology during the winter and spring quarters of 1970 at Merritt College were scored on the Form F key of scales. To avoid contamination of results, these subjects had not been used in the construction of the scales.

The test-retest values shown in Table 2 reflect the tendency of individuals to maintain their relative position when tested a second time, with a six week time interval intervening test administrations. Raw score means and standard deviations are presented for this sample of N = 56 subjects.

Table 2. Estimates of Test-Retest Reliability[a] for the Four Experimental Scales (Form F)

	(N - 56 Males and Females)				
SCALES	r_{12}[b]	$Mean_1$	SD_1	$Mean_2$	SD_2
I	.91	38.1	6.5	39.2	6.4
II	.88	38.2	6.9	39.3	6.1
III	.92	27.8	8.3	28.9	8.2
IV	.90	22.4	9.2	23.3	9.8

[a]The time interval between the two test administrations was six weeks for all subjects.

[b]The coefficients are product-moment r's, uncorrected for attenuation.

Although the scales were found to have satisfactory retest reliability, further test-retest studies should be undertaken with more subjects than was obtained for this phase of the study.

Normative Data

When the subjects in the samples described so far in this report were augmented by all other protocol data supplied by the four community colleges, the scales were tentatively standardized on 650 males and 649 females, separately. These norms are provided as standard ("T") scores. These scores have a mean of 50 and a standard deviation of 10. The raw scores obtained for an individual are converted to standard scores by referring to Appendix J (for males) or Appendix K (for females).

Since the standardization of the scales, at this point, is neither representative nor adequate, other institutions should build their own local norms. For normative purposes, other institutions are invited to submit the results of testing with the experimental scales to Merritt College.

Independence of the Scales

Table 3 shows the product-moment r's (intercorrelations) between the scales for the normative samples, separately by sex.

Table 3. Independence of the Experimental Scales[a]

SCALE	I	II	III	IV
I		.15	.17	-.17
II	.04		.31	-.01
III	.04	.17		-.31
IV	-.18	-.04	-.36	

[a]The intercorrelations for 650 males appear above the diagonal; for 649 females, below the diagonal.

It appears that the scales are relatively independent of one another. There is some correlation (negative) between Scales III and IV, and this finding contributed to the construct validity of both scales: Scale III as measuring a component of "good health"; Scale IV, "poor health." But, essentially, the scales are considered relatively orthogonal.

Homogeneity of the Scales

Studies are underway with the purpose of ascertaining the homogeneity of the scales by analysis of split-test correlations for the experimental scales. It is suspected that the scales will be found to have a considerable degree of homogeneity, mainly due to the method of test construction used.

Concurrent and Other Validational Data

No definitive answers can be given at this stage of the research with respect to whether the scales are valid instruments for the variables they purport to measure. Some light is shed on what the scales measure, however, by an examination of item content of the scales along with an analysis of the correlations of the scales with other well-known instruments.

The correlations presented in the appendixes were based on the product-moment correlations obtained from a sample of N = 52 male and female subjects who had completed the battery of tests administered in an introductory psychology class conducted by the test author at Merritt College.

The concurrent validational data will be presented scale by scale so that a more integrated understanding of each scale may be obtained. These understandings, together with examination of item content of the scales, will form the basis for further description of the scales. Finally, the scales will be assigned tentative trait-names.

Scale I--52 Items. The correlations between Scale I and the scales of the California Psychological Inventory (CPI) (Gough, 1957) are all, with the exception of the Socialization scale (-.32) and Self Control (-.02), in the positive direction (Appendix F).

The highest degree of correlation for Scale I was found with the following CPI scales: Dominance (.37), Capacity for Status (.53), Responsibility (.49), Achievement via Independence (.49), and Intellectual Efficiency (.46).

It is interesting to note the negative relationship between Scale I and the Socialization scale, since Gough (1965) stated there is an important social criterion on which persons with lower So scores excell--in the area of creativity.

The correlations between Scale I and the Omnibus Personality Inventory (OPI) (Heist & Young, 1962, 1968), as shown in Appendix G, reflect a pattern indicating that high scorers have intellectual interests or potential for behaving abstractly.

The OPI correlates of Scale I are all in the expected direction, and are generally higher with this inventory than with any other. The scholarly orientation of Scale I is most clearly brought out by the scale's correlation with Thinking Introversion (.79) and Theoretical Orientation (.56).

The literary and aesthetic component of Scale I is borne out by the scale's relationship to the OPI Estheticism scale (.75), and further suggests Scale I's lack of preoccupation with practical concerns. This OPI correlate, coupled with the correlation found between Scale I and the OPI Masculinity-Femininity scale (-.44), is supportive, in terms of construct validity, of the cultural stereotype of "sublimated" men (women?) capable in the areas of humanistic and cultural activities.

That Scale I should correlate so highly with Complexity (.52) and with Autonomy (.46) are findings which seem consistent with the theory of the scale. The preference of high scorers on the Scale I for dealing flexibly with ambiguous and unstructured

situations, and their need for independence in judgment and creativity are supportive of the scale as a measure of intrinsic motivation and of sublimative tendencies.

The Response Bias scale of the OPI, measuring acquiesence and social desirability, is positively related (.39) to Scale I. This correlation is interpreted to mean that Scale I has a component which appears to measure prudence and circumspectness in a style of relating to people.

The Minnesota Multiphasic Personality Inventory (MMPI) (Hathaway & McKinley, revised 1951) has correlations (Appendix H) none of which reached statistical significance with Scale I. This finding, however, has value for interpreting the scale's concurrent validity. The rationale: Since the MMPI is, broadly conceived, a measure of what is going on within the personality when everything is going wrong (i.e., psychopathology), Scale I reflects psychological "good health"--an indication of the individual's ability to sublimate his energies and to channel them into, more or less, constructive outlets.

The only significant correlation between Scale I and the Edwards Personal Preference Schedule (EPPS) (Edwards, 1953) is with the measure of a need for Achievement (.45), and this finding is consistent with the correlations found between Scale I and the CPI indices of achievement.

To summarize the findings with respect to Scale I (based both on correlates and item content) the following description of the scale is made for high scorers (T-scores of 60 or higher) and for low scorers (T-scores of 40 or lower):

High scorers--Scale 1: Highs are effective, intellectually predisposed individuals; they are independent, creative; and, since they seek challenging and ambiguous contexts, their motives are mostly intrinsic. In addition to liking learning for its own sake, they need to involve themselves in cultural, musical, and artistic activities.

Low scorers: The low scorer is a practical person who prefers stable, action-type activities. Since non-intellectual interests are frequently personality components of persons scoring low, economic considerations and other extrinsic rewards of work are important to them. They are likely to be attracted to and succeed in college majors that are more practical than abstract and theoretical.

Trait-name for Scale I: Although the construct upon which Scale I was built was the concept of sublimation, the scale is tentatively identified here as the Intrinsic Motivation (IM) scale.

Scale II--52 Items. Scale II was conceptualized as a scale to measure status (seeking) motivation--the tendency to seek prestige, approval of others, success.

A descriptive analysis of Scale II with respect to item content (Appendix C) reveals subclusters of content in the following domains: self-enhancement, school and education, goal-persistency, Protestant Ethic, and--less strongly--a few others.

Scale II correlates significantly with three scales of the CPI. Its correlation with Sccialization (.38) is not surprising, since So has been well established to reveal whether a person will behave in a more- or less-socialized way. The obtained correlation of .41 found between Scale II and Gough's achievement via conformity (A_c) scale, however, seems to reflect a tendency for the individual's mode of achievement to be most effective in a setting where conformance is a positive factor; an interesting, though non-significant (-.19) correlation exists between Scale II and the CPI achievement via independence (A_i) scale. The correlation between Scale II and flexibility (F_x), which was found to be -.46, suggests a somewhat rigid approach to adaptability to self-enhancement needs (pressing, though they may be) in the motivational structure of the high scorers on the scale.

Scale II correlated significantly with only one scale of the OPI--the Response Bias scale (.35). This correlation probably reflects the role of acquiescence and the tendency to make a good impression, and this aspect of Scale II is somewhat bolstered by the scale's single significant correlation with the EPPS's need for Autonomy (-.35).

Appendix H indicates that Scale II is inversely related at a significant level with half a dozen MMPI scales and positively with none. The correlations with the "neurotic triad" scales (H_s, -.38; D, -.42; H_y, -.36) reflects a lack of somatic complaint in the high Scale II scorer. Personologically, low scorers on the neurotic triad of the MMPI are described as alert, ambitious, self-seeking individuals who take a direct course with other people.

The correlation of -.37 with Schizophrenia and of -.40 with Psychasthenia are contraindicative of social alienation, phobic symptoms, and anxiety. The lack of social alienation is indicated also in Scale II's correlation with the Social Introversion scale (-.39) of the MMPI. These MMPI correlates suggest that the high scorer's robustness--though not of a particularly creative kind--is supportive of self-seeking tendency.

High Scorers--Scale II: Highs have more than average need for prestige, success, self-esteem. They are hard-working, appreciative of those things for which they have worked so hard, and likely to finish whatever tasks they undertake. They are robust, "socialized" individuals who are free from somatic complaints and feelings of social alienation. Very high scorers, through a somewhat rigid conformance, will persist in situations (except where independence or autonomy is favored behavior) until they have attained their goals.

Low Scorers: Lows care little (on conventional grounds) about the esteem of others. Very low scorers, in fact, are rebellious and have a tendency toward non-conformity. Lows admit to feelings of depression and anxiety. They often act carelessly and impulsively. Their achievement mode, in contrast to the high scorer, is more likely to be (though often not "strong") via independence rather than via conformance.

Trait-name for Scale II: Self-Enhancement (SE) has been tentatively assigned as a trait-name for Scale II, although others would be equally appropriate, such as: Self-Esteem, Self (seeking) Status, and so on.

Scale III--47 Items. This measure has positive and significant correlations with four of the six CPI measures of poise, ascendancy, and self-assurance. Its highest correlation was with the Sociability scale (.66), in keeping with the constructs of person-directed motivation. This major aspect of Scale III receives even stronger support from examination of Appendix G, where it is shown that Scale III correlates -.81 with the Social Introversion scale of the OPI.

Not only does Scale III's correlation with the CPI scale titled Dominance (.54) reflect an ascendant role interpretation, but also the correlation of .48 on Edward's need for Dominance (Dom) scale supports this meaning.

Another component of Scale III is ease of social interaction, as can be noted by the scale's correlation of .56 with the measure of "social presence" of the CPI and, perhaps more indirectly, from Scale III's even higher correlation with Gough's scale titled Self-Acceptance (.60).

Another interesting, though not at all surprising, correlation is that between Scale III and the Socialization scale (.40) of the CPI.

Scale III strongly reflects a lack of interpersonal problems, as can be seen by examination of the item content of the scale (Appendix D) and correlates of the scale. For example, the scale correlates -.42 and .41 on the OPI's Schizoid Functioning scale and Lack of Anxiety scale, respectively. With the Well-Being scale of the CPI the correlation was positive (though not significant at the 1% level of confidence) and found to be .32.

Scale III does not appear to be related to components measured by the MMPI. The scale was found to have its highest (though non-significant) correlation with the MMPI's measure of Social Introversion(-.30).

One of the items of Scale III is "I like to be noticed." In keeping with the content of this item, it is interesting to note the correlation of .36 between Scale III and Edwards' need for Exhibition (Exh) scale.

High Scorers--Scale III: High scorers on this scale are socially-effective, person-directed individuals. They are at ease in social situations: They are not bashful or shy when introduced to someone new; they enjoy group activities; they prefer to work with people rather than to work alone. Highs are also socialized persons who have relatively few "problems." They enjoy life.

Low Scorers: Lows are inner-directed people. They eschew group situations. With respect to the world of work domain, they prefer to work alone rather than to work with others. Low scores reflect introversion.

Trait-name for Scale III: This measure is provisionally assigned the trait-name Person-Orientation (PO). Other names were considered, such as: Extroversion, Group-Orientation, and so on.

Scale IV--47 Items. This scale reflects many intrapunitive, self-defeating aspects of human motivation. An analysis of the items arranged into subclusters of content (Appendix E) reveals the following components: ambivalence (passivity vs. aggressiveness), self-directed hostility, lack of confidence, neuroticism, and (especially) motivation- and goal-deficiency.

The pattern of negative correlations (Appendix F) between Scale IV and measures of the CPI is so strong that the test author is almost tempted to trait-name it the "Inverse-CPI-Elevated-Profile Scale." Seventeen out of the eighteen correlations are negative, fourteen significantly at the .01 level.

Thoroughly consistent with the purpose of the scale is its correlation of -.70 with the Sense of Well-Being scale of Gough's inventory.

The correlations of Scale IV with the CPI measures of Dominance (-.45), Capacity for Status (-.44), Sociability (-.51), Social Presence (-.60), and Self-Acceptance (-.41) present a picture of social inadequacy.

Among the CPI "character" variables, Scale IV correlates substantially with Socialization (-.39), Self Control (-.45), Tolerance (-.54), and Good Impression (-.43).

The lack of achievement component of Scale IV is reflected by correlations with Achievement via Conformance (-.54), Achievement via Independence (-.35), and Intellectual Efficiency (-.55).

The above interpretations are supported consistently by the coefficients computed for the relationships between Scale IV and three of the OPI scales. The social alienation and phobic lack of confidence aspects of the scale find further confirmation in the correlations with Schizoid Functioning (.81), Social Introversion (.61), and Lack of Anxiety (-.76).

Appropriately, MMPI correlates (Appendix H) are: .36 with the A (Anxiety) scale; -.35 with Ego Strength; and -.37 with Dominance.

Finally Scale IV's component of submissiveness is strengthened somewhat by the scale's correlation of .35 with Edwards' need for Succorance (Suc) scale.

High Scorers--Scale IV: The high scorer on this measure does not manage himself very well: He is intrapunitive, anxious, "sensitive." He is inconsistent in his expression of hostility; he lacks confidence in himself; and it is quite likely that he has had considerable conflict in his home and family background experiences. A major aspect of his "problems" is found in the area of motivation- and goal-deficiency difficulties.

Low Scorers: Persons scoring low (a T-score of, say, 40) are highly motivated, energetic individuals. They assume a somewhat ascendant approach to other people. They deny adjustment problems, feelings of anxiety, or personal inadequacies.

Trait-name for Scale IV: Since, low scorers on the scale--contrary to theory--have not as yet been found to possess extrapunitive tendencies, it would seem unwise to trait-name the scale "Intropunition," as the test author had originally intended. At present, the scale is tentatively identified as the Goal-Deficiency (GD) scale.

Status of Current Research

Complete validational analysis is beyond the scope of the research presented in this report. At present, however, research is in progress at Merritt College that is expected to shed additional light on the reliability and validity of the scales beyond that which is here presented. Currently under study, for example, are group differences in profiles of academic majors vs. trade-technical majors. Correlations between the four scales and aptitude test scores, GPA, sex, and age will soon be run on the College computer. Several of the investigator's colleagues are using the experimental scales in studies of their own.

Since the scales call for "true-false" responses, research is needed to report evidence on the degree to which the scores reflect a set to acquiesce and to make a good impression.

A factor analysis of the scales should be undertaken as an additional aid to validation.

IMPLICATIONS OF THE FINDINGS

As pointed out earlier, in this report, this study was designed to construct three experimental measures for use with a typology of motivation proposed by the investigator. A fourth scale, which appears to be a measure of goal-deficiency, was also developed.

The four scales--tentatively identified as Intrinsic Motivation (IM), Self Enhancement (SE), Person-Orientation (PO), and Goal-Deficiency (GD)--were found to be relatively independent of one another and to have a high degree of test-retest reliability. Provisional norms, based on 650 males and 649 females enrolled at four community colleges, were established.

Item content and correlates of the scales suggest that the scales developed should have special relevance for description and analysis of motivation in relation to work and education. For example, diagnostic formulations, mediated by the variables contained in either the two-way or the three-way classificatory schemas discussed in this report, have potential for predicting behavior in many areas of human experience. A few of the speculative and perhaps more interesting research possibilities which could proceed from the present research are sketched out and follow in outline form below:

1. Future research could be addressed to accumulation of a variety of validity studies performed within the typological framework (or other implied psychological nosology) presented in this report. The investigator has already used the typology of motivation proposed, in conjunction with the scales developed, for example, to help students in his career planning course to identify motivational subtype--to be flexibly used in selection of broad areas of vocational possibilities. This is not to imply that counselors should place students in occupationally-related curricula on the basis of such formulations of motivation. Tentative identification with a particular subtype of motivation might be useful, however, in facilitating exploratory vocational behavior.

2. Another research focus could be in the area of educational attainment. An index composed of various combinations of the experimental scales could be tried out to predict GPA. Such an index as the High Achievement Syndrome (HAS), for example, in which the individual's standard score on GD is subtracted from his standard score on IM, might prove accurate and dependable.

3. Another index--one for social alienation--might be provided by subtracting the subject's PO score from his GD score; high positive scores would indicate alienation, while high negative scores would betoken lack of social alienation.

4. An attempt could be made to relate the present research to a specific instructional outcome of the teaching-learning process. In the area of differentially structured instructional methods, for example, the following hypothesis seems reasonable:

H_1: Ss with very high scores on SE (i.e., students whose mode of achievement is most effective where conformance is favored behavior) perform better scholastically under conditions identified as the "traditional" teacher-oriented method, whereas Ss who have average and below average scores on SE (i.e., students whose achievement mode is via independence), conversely, have better scholastic performance under the teaching method which stresses independent learning (e.g., a "programmed" teaching technique).

5. Research should be done in the community colleges to determine the extent to which non-cognitive factors--such as those presumably measured by the scales constructed by the present investigator--are involved in the process of choosing a vocational or academic curriculum. It seems likely that when students are not screened by the institution, they do tend to choose a particular curriculum in terms of their "basic

motivational trends." There is at present, however, a dearth of evidence to support this contention.

6. Research could be undertaken with the new experimental scales to study changes of community college students as a result of their two years in college.

7. Since the Goal-Deficiency (GD) scale presumably measures the student's lack of efficiency in purposefully using his interests and aptitudes, the scale's usefulness by instructors of study skill courses should be determined.

8. In the area of personality theory research: a tetrachoric correlational analysis of the Goal-Deficiency scale could be undertaken--similar to the technique used by Little and Fisher (1958) to build the Admission (Ad) scale and the Denial (Dn) scale from item analysis of the Hysteria scale of the MMPI--to determine whether the scale is (or is not) composed of two unipolar continua. If the scale contains two primary dimensions--a set of "masochistic" items and a set of "sadistic" items--this finding would have implications for a theory of sado-masochism (i.e., the "bipolar theory" held originally by the present investigator would be weakened).

9. In regard to the counseling-therapy domain:

H_1: High Goal-Deficiency (GD) Ss who are classified also as High Person-Orientation (PO) Ss show more improvement under group-oriented growth experiences, whereas those Ss who are classified also as Low Person-Orientation Ss improve more under individual-oriented treatment.

10. Finally, the scales developed in this research should be examined in conjunctive use with the Strong Vocational Interest Blank (SVIB) and other tests of interest. Although the four new experimental scales were not developed to measure specific vocational interests, the scales may be found useful in forecasting whether, once committed, the individual does or does not carry out his occupational goals in terms of his motivation. In other words, research is needed to determine whether the individual "will get there."

Many more studies could be advanced, but those cited in this section, should serve to indicate the potential value of the experimental scales for future educational and psychological research.

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APPENDIX A

Instructions to Judges

You have been provided a deck of 300 student-written test items.

Please allocate each item of the deck into one of four diagnostic categories (preliminary clusters). These preliminary clusters will constitute the starting point for the construction of four separate psychological scales, namely: Socio-economic status (SES), Person-orientation (PO), Sublimation (Su), and Intropunition (In).

As much as possible, attempt to place each item into one of the four diagnostic categories, but if a particular item does not "sort" well into any one of the above (or if it sorts equally well--or poorly--into more than one of the categories), place it in the "Miscellaneous" category.

Only after you have allocated all 300 items should you then record on the 3 X 5 for the item the category (SES, PO, etc.) to which you have allocated the item and the direction ("true" or "false") which, in your judgment, the item should so be allocated and scored in keeping with the concept of the category. "Miscellaneous" items will, of course, not be scorable with respect to direction.

As an illustration of the procedure, let's say you judged item #1 ("The approval of others means a lot to me.") to the SES category. (Conceivably, another judge might allocate this particular item to the PO category, with equal conviction.) At any rate, you felt that the item sorts best into SES and that, furthermore, it should be scored "true." So, you would write SES under the item as it is typed on the 3 X 5 card; and for the direction of the item to be scored, you would write "true." Thus:

1.

The approval of others means

a lot to me.

SES-true

Item #2 ("I would rather accomplish something original than make a lot of money.") might likely be allocated into the Su preliminary category; its scoring as judged by the rated, likely would be "true." In such a case, the card for this particular item would read:

2.

I would rather accomplish something original than make a lot of money.

Su - true

Similarly, skipping down to item #8 ("I don't socialize enough."), would look, most likely, for this particular item, like this:

8.

I don't socialize enough.

PO - false

Now, after you have allocated the 300 items into what you consider the appropriate categories and have decided whether the item should be scored true or false, please mark each 3 X 5 item-card according to your judgment.

Brief descriptions of the diagnostic categories and/or the tentative content of the scales to be constructed follow below:

APPENDIX A (cont.)

Instructions: Sort the 300 items into five piles under the categories as described below. For your convenience, by cutting or tearing on the dotted lines, each of the five piles can be headed by its category-description.

Socio-Economic Status (SES)

This cluster of items purports to measure a prestige or status dimension. High scorers on the final revision of this scale are expected to have need for high status and social attainment. This should be especially true for students of middle-income parents. Such students tend to emphasize the getting of good grades in college, are more likely than low scorers to go on to graduate training, and, in general, place much importance on the esteem of their fellow men. Although highly interested in success, they often demand it on their own terms--and sometimes in unconventional ways; for example, belonging to a Greek letter society may, for many prestige-conscious young people of today, not have much meaning in terms of high status.

High scorers might tend to answer items as follows:

I want to be something better than I am now.--true.
I care very little about being praised.--false.
I try not to be jealous of others.--true.
I rarely try to get ahead.--false.

Person-Orientation (PO)

Persons scoring high on this cluster tend to prefer situations in which they have much direct association with people. Their social direction is toward people; low scorers, on the other hand, tend to be moving away from--but not against--others. High scorers, being interested in social activities, are thus "person-directed." Individuals who are not "person-directed" (low scorers), on the other hand, are interested in "things and (when intelligence is high) ideas, imagination, and inner life. High scorers endorse items in the following way:

I like being with lots of people.--true.
When working on a project, I prefer to work by myself.--false.
I like a job that allows me to work with large groups of people.--true.
I am a shy person.--false.

Sublimation (Su)

These items reflect the individual's disposition to direct his energies into creative and constructive outlets--intellectual, cultural, humanitarian, and artistic. Persons endorsing items in this cluster enjoy various activities for the intrinsic values they find: the work itself--rather than external rewards--is most important. High scorers seek self-actualizing experiences; learning for its own sake is highly valued, as are opportunities to become creative--a fully-functioning person. High scorers are more at home with complexity and apparent disorder than are low scorers. The "sublimated" person (high scorer) endorses items in the following manner:

I would rather accomplish something original than make a lot of money.--true.
I hate practically all forms of art and science.--false.
I would like my work to benefit mankind.--true.
I hate to study.--false.

Intropunition (In)

This category deals with how the individual directs his hostility: whether inward, against the self, or outward, against others (or objects). The high scorer directs blame and anger against himself; he deprecates; he has, unconsciously, more feelings of guilt than he is willing to recognize. The low scorer on this cluster is "harder" on others (sadistic) than on himself, while the high scorer is "harder" on himself (masochistic) than on others. High scorers tend to endorse items as follows:

I wouldn't mind being taken advantage of, if the cause or reason justified it.--true.
When I feel like doing something, I just do it.--false.
As a child, I was always getting hurt.--true.
I would like to "get even" with someone.--false.

Miscellaneous (Misc)

This is the "wastebasket" category for those items which you feel you cannot on any sensible, rational, psychological--or any meaningful--basis allocate to any of the foregoing diagnostic categories.

APPENDIX B

SCALE I

Scale I contains the items listed below in tentatively formed subclusters. The direction of scoring is given (T) for true and (F) for false. The sample on which the scale was constructed consisted of 346 males tested in four junior colleges during the 1969-71 academic year. The scale was "purified" on a sample of 185 males and on a sample of 195 females, separately.

1. Verbal-cultural

a. Reading and Writing

300-Item Booklet Item #		Averaged r Point-biserial
7.	I am a poor reader. (F)	-.34
13.	I like to read poetry. (T)	.41
18.	I like good books. (T)	.27
28.	I like to write. (T)	.40
66.	I like to read. (T)	.45
119.	Creative writing appeals to me. (T)	.49
159.	I like literature. (T)	.48
161.	I never read anything unless it is required. (F)	-.36
166.	I have been influenced a great deal by the reading I do. (T)	.46

b. Art, Music, and Drama

91.	I hate practically all forms of art. (F)	-.24
102.	I like Broadway musicals. (T)	.28
106.	I like modern jazz. (T)	.18
114.	I like dramatics. (T)	.46
150.	I wish I knew more about modern jazz. (T)	.36
194.	I have a great love of music. (T)	.31

2. Avocational-recreational

31.	I do not like to go hunting. (T)	.20
51.	I would rather go bowling than read a book. (F)	-.42
69.	I like sailing. (T)	.26
124.	I like to play chess. (T)	.28
127.	I like to draw. (T)	.16
204.	I would rather see a good play than go to the movies. (T)	.36
222.	I spend a lot of time watching sports on television. (F)	-.20
261.	I like to cook. (T)	.23

Scale I

3. Intellectual Disposition

26.	I like discussions on intellectual topics. (T)	.38
55.	I don't like complicated conversations. (F)	-.42
186.	I dislike doing mental work. (F)	-.40
262.	I like to study. (T)	.38
282.	I hate science. (F)	-.27
296.	I become easily bored with intellectual tasks. (F)	-.39

4. Creative Performance

84.	I can play a musical instrument. (T)	.19
182.	If I had the talent, I would like to perform as a creative person. (T)	.40
270.	If I had the talent, I would like to perform on the stage. (T)	.37

5. Independence of Judgment, Serious-Mindedness, and Self-Sufficiency

148.	I am a person who tries to think for himself. (T)	.22
205.	I am a serious-minded person. (T)	.31
216.	I'm trying to become self-sufficient. (T)	.28

6. Areas of Work and Job Attitudes

11.	I would rather work with my hands than with with my head. (F)	-.27
32.	I prefer work that doesn't require much concentration. (F)	-.34
54.	I would like my work to benefit mankind. (T)	.30
116.	I would like the work of a lawyer. (T)	.32
121.	I would like to teach. (T)	.36
123.	Enjoying the work you do is a lot more important than how much money you make. (T)	.17
153.	I would like the work of an architect. (T)	.21
219.	I like work that allows you to do pretty much the same thing from one day to the next. (F)	-.24

Scale I

7. Originality, Unconventionality, and Liberated Attitudes

2.	I would rather accomplish something original than make a lot of money. (T)	.25
197.	A married woman should have both a family of her own and a career. (T)	.20
211.	I like my religion and think that it is the only one to have. (F)	-.22
215.	If it were possible, I would like to sleep only a few hours per day, so that I could spend the remaining hours accomplishing something original. (T)	.36

8. Miscellaneous

143.	My interests are varied. (T)	.27
170.	I don't have any faults that I know about. (F)	-.21
272.	I don't have any special interests. (F)	-.28
284.	I frequently admire a well-designed table, chair, house, etc. (T)	.30

APPENDIX C

SCALE II

The items of Scale II of the Motivation Inventory are tentatively identified according to the following subclusters:

1. Self-Enhancement and Achievement

300-Item Booklet Item #		Averaged r Point-biserial
1.	The approval of others means a lot to me. (T)	.30
46.	I hope to make something of myself. (T)	.35
52.	I hope to become something really big in the world. (T)	.33
58.	I have the feeling that I had better do something in life that will make people proud of me. (T)	.29
68.	I want to be something better than I am now. (T)	.31
79.	I desperately want to be a success in life. (T)	.44
192.	I want to do something in life that will make someone proud of me. (T)	.45

Scale II

238.	I would like to achieve satisfactory status in the community. (T)	.44
255.	I sometimes wish I could do something really great. (T)	.29

2. School and Education

45.	I feel that knowledge is necessary for effective everyday life. (T)	.29
53.	School has really been an important part of my life. (T)	.31
81.	I hate to see my friends drop out of college. (T)	.39
130.	I feel I should try to further my education. (T)	.23
158.	I hope to finish college. (T)	.36
245.	I know how important it is to go to college. (T)	.28
249.	College is a great help in assisting you to make something of yourself. (T)	.31
260.	With a good education a person is better prepared to go out on his own. (T)	.39
265.	I want to get all the education I possibly can. (T)	.32

3. Persistence and Progress Toward Goals

36.	I am trying to better myself as a person. (T)	.32
76.	I have already formulated certain objectives for my future in the world of work. (T)	.24
122.	I always play to win. (T)	.21
164.	I am a lazy person. (F)	-.40
251.	To the best of my ability, I like to finish things I have started. (T)	.33
267.	I enjoy working constructively, knowing that when I am finished, I'll have accomplished something worthwhile. (T)	.30
271.	If I start something, I'm likely to finish it. (T)	.36

4. Protestant Ethic

42.	I believe that you should work for what you get. (T)	.35
112.	I have a great respect for the property of other people. (T)	.38
133.	Although I sometimes feel like doing something foolish, I usually stop short of doing it. (T)	.31
165.	I like to work hard. (T)	.25
195.	I just don't feel like "putting my nose to the grindstone." (F)	-.36

Scale II

196.	I usually try my best to succeed. (T)	.41
207.	If I really work for the things I want, I will eventually get them. (T)	.32
214.	I think you are more apt to appreciate more those things for which you have worked so hard. (T)	.27
253.	One of the most important things in life is to have a career. (T)	.38
276.	I strive for perfection whenever I undertake a project. (T)	.34
278.	The prime force in my life will be my work. (T)	.21
289.	I like to learn. (T)	.24

5. Sense of Responsibility

27.	Someday I hope to hold a responsible place in the community. (T)	.47
279.	I hate the thought of responsibility. (F)	-.24

6. Ideals and Moral Standards

15.	I consider myself to be a good citizen. (T)	.33
37.	I am a person of high ideals. (T)	.29
162.	I have high moral standards. (T)	.38
269.	I want to be a well-rounded person. (T)	.35

7. Miscellaneous

22.	I am an unconventional person. (F)	-.24
94.	My family background has influenced me greatly to want to be successful. (T)	.25
99.	I like to help others when they are in trouble. (T)	.18
120.	I was born to raise hell. (F)	-.20
185.	People used to say that I was careless. (F)	-.29
189.	On the sports field, I feel pretty aggressive. (T)	.26
193.	I feel I know how to use authority without abusing it. (T)	.32
212.	I try to be patient with others. (T)	.35
281.	I try to treat everyone with the respect due him. (T)	.27

APPENDIX D

SCALE III

For Scale III, the items are tentatively aligned into the following provisional subclusters:

1. Sociability, Helpfulness, and Generosity

300-Item Booklet Item #		Averaged r Point-biserial
14.	I don't socialize enough. (F)	-.43
20.	I enjoy talking with people. (T)	.27
43.	In general, I must say that I dislike people. (F)	-.29
175.	I like people. (T)	.32
200.	I am not a socially outgoing person. (F)	-.56
223.	Generally speaking, I'm friendly and outgoing with people. (T)	.38
241.	I seem to make friends easily. (T)	.40
277.	I enjoy being around people. (T)	.50

2. Interest in People, Many Friends

38.	I have friends of all kinds. (T)	.40
71.	There is nothing quite so interesting to me as trying to make friends with another person. (T)	.26
83.	My friends are few but close. (F)	-.37
101.	People interest me. (T)	.30
258.	I have few friends. (F)	-.50

3. Lack of Interpersonal Problems

29.	I feel awkward when meeting strangers. (F)	-.48
49.	I feel uncomfortable when I meet someone new. (F)	-.48
67.	People seem to like me. (T)	.28
107.	When introduced to someone, I tend to be a little shy. (F)	-.41
137.	I seldom hold a grudge. (T)	.24
139.	It has always been hard for me to make friends. (F)	-.47
149.	I am bashful around people I don't know very well. (F)	-.47
168.	I don't like to meet new people. (F)	-.34
250.	I am a shy person. (F)	-.46
291.	It takes me quite a while to feel at ease with a group of people new to me. (F)	-.53

Scale III

4. Social, School, and Church Activities

56.	I try not to miss any socially important event. (T)	.48
97.	I like going to parties, even though I may not know anyone who is going to be there. (T)	.33
129.	I like to give parties. (T)	.40
273.	I enjoy social events very much. (T)	.47

5. Preference for Group Interaction

12.	I like doing things in groups. (T)	.45
87.	I usually enjoy being with a crowd. (T)	.48
110.	I dislike crowds. (F)	-.50
115.	I prefer to be with just one friend than with a group. (F)	-.38
209.	I prefer small groups of people to large ones. (F)	-.32
283.	I dislike being in large groups of people. (F)	-.57
297.	I usually like to be left alone. (F)	-.47

6. Preference for Work Involving People Contact

3.	I hope that someday I will be able to work directly with people. (T)	.32
203.	I would like to work with youth groups. (T)	.27
240.	When working on a job, I prefer working by myself. (F)	-.27
246.	I like working with others very much. (T)	.46

7. Joie de Vivre

151.	I choose friends who like a lot of action. (T)	.20
184.	I like to dance. (T)	.33
252.	I have few dislikes. (T)	.23
259.	I am an easy-going person. (T)	.26

8. Miscellaneous

33.	I have a good home-life. (T)	.27
44.	I like to be noticed. (T)	.26
73.	I prefer quiet people to noisy ones. (F)	-.30
228.	I would rather listen than talk. (F)	-.24
237.	I think my friends would describe me pretty much the way I would describe myself. (T)	.24

APPENDIX E

SCALE IV

The following items appear on Scale IV and are grouped tentatively into subclusters, as the items seem, on an inspectional basis, to align themsleves:

1. Passivity vs. Aggressiveness

300-Item Booklet Item #		Averaged r Point-biserial
21.	It seems that I keep fighting everything in life. (T)	.39
144.	I would like to "get even" with someone. (T)	.29
171.	I often tell a person I agree with him, even when I secretly don't agree at all. (T)	.30
201.	I have a bad temper. (T)	.24
231.	I try too hard to please others. (T)	.26
242.	When I'm angry, I try to keep it to myself. (T)	.21
257.	It takes a good deal of suffering to become worldly. (T)	.34
292.	It's hard for me to say "no" even when I know I should. (T)	.47

2. Self-Directed Hostility

100.	I'm always "putting myself down." (T)	.48
169.	I would never punish myself for something I felt guilty about. (F)	-.21

3. Accident-Proneness

248.	As a child, I was always getting hurt. (T)	.31
264.	It seems to me that I am in the wrong place at the right time too frequently. (T)	.40

4. "Sensitiveness"

35.	Embarrassing experiences stay with me for a long time. (T)	.44
288.	I'm too softhearted. (T)	.38

5. Lack of Confidence

30.	Sometimes I feel that I don't have what it takes to graduate from an institution of higher learning. (T)	.42
75.	I'm always concerned with what others might think of me. (T)	.40

Scale IV

152.	I seem to have more confidence in myself away from college. (T)	.35
225.	It scares me to think thay I may never amount to anything. (T)	.47
229.	I don't have as much confidence in myself as I should. (T)	.46
287.	Sometimes I'm afraid that I just won't make the grade. (T)	.48

6. Neuroticism

77.	I feel I should mix more with people. (T)	.39
80.	I am a restless person. (T)	.36
85.	I feel much more at ease at home than I do at school. (T)	.24
98.	I worry over little things. (T)	.49
141.	I am rather a moody person. (T)	.33
213.	I frequently have "blue moods." (T)	.39
220.	I must admit that sometimes I feel a little self-pity. (T)	.33
226.	I am an impatient person. (T)	.30
234.	I am very self-conscious. (T)	.40
266.	I day-dream a lot. (T)	.49

7. Motivation and Goal Deficiency

65.	I need more time to think over what I'm going to do in life. (T)	.39
88.	I am completely stumped as to what occupation to go into. (T)	.22
92.	I do not always try to think for myself. (T)	.33
105.	I regret not pushing myself harder in my studies. (T)	.28
125.	I let everything go until the last minute. (T).	.36
126.	I wish that the ideas I have about myself could manifest themselves outwardly. (T)	.35
167.	I wish I were more ambitious. (T)	.41
191.	At the rate I'm going, it will take me forever to reach my goals in life. (T)	.42
199.	I tend to "let up" when the going gets rough. (T)	.40
217.	I don't apply myself the way I should. (T)	.48
224.	I lack motivation. (T)	.47
275.	I cannot keep my mind on one thing very long. (T)	.35

Scale IV

294. I must admit that I lack self-determination. (T) .49
298. Just getting started on a task is difficult for me. (T) .43

8. Family Background

64. My parents, in one way or another, have pushed college on me. (T) .29
100. I had to look outside my home and family for the attention I thought I needed when I was growing up. (T) .39
236. My parents have been a good influence on me. (F) -.21
243. As a child, I was spoiled. (T) .23

9. Miscellaneous

90. I want to be praised for my accomplishments. (T) .29

APPENDIX F

COORELATIONS BETWEEN THE EXPERIMENTAL MEASURES
AND THE CALIFORNIA PSYCHOLOGICAL INVENTORY (CPI)*

(N = 52 Males & Females)

CPI	I (IM)	II (SE)	III (PO)	IV (GD)
Dominance (Do)	.37*	.26	.54*	-.45*
Capacity for Status (Cs)	.53*	.05	.25	-.44*
Sociability (Sy)	.28	.25	.66*	-.51*
Social Presence (Sp)	.14	.05	.56*	-.60*
Self-Acceptance (Sa)	.21	.31	.60*	-.41*
Sense of Well-Being (Wb)	.04	.19	.32	-.70*
Responsibility (Re)	.49*	.01	-.01	-.2/
Socialization (So)	-.32	.38*	.40*	-.39*
Self-Control (Sc)	-.02	-.01	-.01	-.45*
Tolerance (To)	.25	-.20	-.07	-.54*
Good Impression (Gi)	.22	-.01	.08	-.43*
Communality (Cm)	.08	.34	.16	-.28
Ach. via Conformance (Ac)	.32	.41*	.30	-.54*
Ach. via Independence (Ai)	.49*	-.19	-.11	-.35*
Intellectual Efficiency (Ie)	.46*	.02	.20	-.55*
Psychological Mindedness (Py)	.28	.05	.25	-.48*
Flexibility (Fx)	.21	-.46*	-.03	-.12
Femininity (Fe)	.14	-.03	.02	.01

*r of .35 is significant at the .01 level.

APPENDIX G

CORRELATIONS BETWEEN THE EXPERIMENTAL MEASURES
AND THE OMNIBUS PERSONALITY INVENTORY (CPI)* (FORM D)

(N = 52 Males & Females)

CPI	I (IM)	II (SE)	III (PO)	IV (GD)
Thinking Introversion (TI)	.79*	.04	.01	-.12
Theoretical Orientation (TO)	.56*	.02	-.24	-.08
Estheticism (Es)	.75*	.02	-.16	.20
Complexity (Co)	.52*	-.20	.06	-.02
Autonomy (Au)	.46*	-.27	-.17	-.17
Religious Liberalism (RL)	.24	-.26	-.18	.03
Impulse Expression (IE)	.09	-.14	-.04	.26
Schizoid Functioning (SF)	.11	-.20	-.42*	.81*
Social Introversion (SI)	-.07	-.32	-.86*	.61*
Lack of Anxiety (LA)	.11	.22	.41*	-.76*
Masculinity-Femininity (MF)	-.44*	.03	-.29	.01
Response Bias (RB)	.39*	.35*	.01	-.32

*r of .35 is significant at the .01 level.

APPENDIX H

CORRELATIONS BETWEEN THE EXPERIMENTAL MEASURES AND
THE MINNESOTA MULTIPHASIC PERSONALITY INVENTORY (MMPI)*

(N = 52 Males & Females)

MMPI	I (IM)	II (SE)	III (PO)	IV (GD)
Lie (L)	.01	-.31	.03	-.12
Infrequency (F)	.12	-.33	-.03	.14
K	.07	-.29	.19	-.30
Hypochondiasis (Hs)	.09	-.38*	.01	-.03
Depression (D)	.14	-.42*	-.15	.21
Hysteria (Hy)	.14	-.36*	.04	-.07
Psychopathic Deviate (Pd)	.23	-.33	-.05	.09
Masculinity-Femininity (Mf)	.12	-.20	-.01	.11
Paranoia (Pa)	.19	-.17	-.09	.11
Psychasthenia (Pt)	.13	-.37*	-.08	.20
Schizophrenia (Sc)	.15	-.40*	-.04	.17
Hypomania (Ma)	.06	-.18	.24	-.05
Social Introversion (Si)	.12	-.39*	-.30	.26
Anxiety (A)	.11	-.31	-.16	.36*
Repression (R)	-.04	-.32	-.04	-.13
Ego Strength (Es)	.01	-.20	.20	-.35*
Low Back Pain (Lb)	-.05	-.25	.15	-.16
Caudality (Ca)	.05	-.36*	-.15	.29
Dependency (Dy)	.10	-.26	-.13	.30
Dominance (Do)	.20	-.09	.22	-.37*
Responsibility (Re)	.15	-.25	.11	-.22
Prejudice (Pr)	-.04	-.15	.05	.19
Status (St)	.22	-.12	.24	-.22
Control (Cn)	.21	-.15	.05	.09

*r of .35 is significant at the .01 level.

APPENDIX I

CORRELATIONS BETWEEN THE EXPERIMENTAL MEASURES AND THE EDWARDS PERSONAL PREFERENCE SCHEDULE (EPPS)*

(N = 52 Males & Females)

EPPS	I (IM)	II (SE)	III (PO)	IV (GD)
Achievement (Ach)	.43*	.06	-.21	.08
Deference (Def)	-.07	.12	.07	.00
Order (Ord)	-.06	.06	-.10	.00
Exhibition (Exh)	.09	.03	.36*	-.28
Autonomy (Aut)	.06	-.35*	.02	-.19
Affiliation (Aff)	.06	-.10	-.01	.01
Intraception (Int)	.05	.12	-.10	-.03
Succorance (Suc)	.10	-.10	-.04	.35*
Dominance (Dom)	.20	.33	.48*	-.28
Abasement (Aba)	.34	-.02	-.23	.23
Nurturance (Nur)	.04	-.21	-.15	.18
Change (Chg)	.21	-.29	-.05	.07
Endurance (End)	.08	.20	-.19	-.03
Heterosexuality (Het)	.06	-.19	-.07	-.15
Aggression (Agg)	-.01	.01	.18	-.04
Consistency (Con)	.10	-.13	.00	.14

*r of .35 is significant at the .01 level.

APPENDIX J

Transformed Standard Scores for the
Merritt College Motivation Inventory (MCMI)
(N = 650 Males)

Raw Score	I	II	III	IV
52	72	68		
51	70	67		
50	69	65		
49	68	64		80
48	67	63		78
47	65	61	72	77
46	64	60	71	76
45	63	58	70	75
44	61	57	68	74
43	60	55	67	73
42	59	54	66	72
41	58	52	65	71
40	56	51	64	69
39	55	49	62	68
38	54	48	61	67
37	52	47	60	66
36	51	45	59	65
35	49	44	57	64
34	48	42	56	63
33	47	41	55	62
32	46	39	54	61
31	45	38	53	59
30	44	36	51	58
29	42	35	50	57
28	41	34	49	56
27	40	32	48	55
26	38	31	47	54
25	37	29	45	53
24	36	28	44	52
23	34	26	43	50
22	33	25	42	49
21	32	23	40	48
20	31	22	39	47
19	29	21	38	46
18	28	19	37	45
17	27	18	36	44
16	25	16	34	43
15	24	15	33	41
14	23	13	32	40
13	22	12	31	39
12	20	10	30	38
11	19	9	28	37

APPENDIX J (cont.)

Raw Score	I	II	III	IV
10	18	8	27	36
9	16	6	26	35
8	15	5	25	34
7	14	3	23	33
6	13	2	22	31
5	11	0	21	30
4	10	0	20	29
3	9	0	19	28
2	7	0	17	27
1	6	0	16	26
Mean	35.1	39.4	28.9	22.3
SD	7.8	6.9	8.2	8.9

Note: Means and standard deviations are given in raw score units.

APPENDIX K

Transformed Standard Scores for the
Merritt College Motivation Inventory (MCMI)
(N = 649 Females)

Raw Score	I	II	III	IV
52	73	71		
51	71	70		
50	70	68		
49	68	66		81
48	67	65		80
47	65	63	71	79
46	64	62	70	77
45	62	60	69	76
44	61	58	67	75
43	59	57	66	74
42	58	55	65	73
41	56	54	64	72
40	55	52	62	70
39	53	50	61	69
38	52	49	60	68
37	50	47	59	67
36	49	46	57	66
35	47	44	56	65

APPENDIX K (cont.)

Raw Score	I	II	III	IV
34	46	43	55	64
33	44	41	54	62
32	43	39	52	61
31	41	38	51	60
30	40	36	50	59
29	38	35	49	58
28	37	33	47	57
27	36	31	46	56
26	34	30	45	54
25	33	28	44	53
24	31	27	42	52
23	30	25	41	51
22	28	23	40	50
21	27	22	39	49
20	25	20	37	47
19	24	19	36	46
18	22	17	35	45
17	21	16	34	44
16	19	14	32	43
15	18	12	31	42
14	16	11	30	41
13	15	9	29	39
12	13	8	27	38
11	12	6	26	37
10	10	4	25	36
9	9	3	24	35
8	7	1	22	34
7	6	0	21	32
6	4	0	20	31
5	3	0	19	30
4	1	0	17	29
3	0	0	16	28
2	0	0	15	27
1	0	0	14	26
Mean	36.7	38.7	30.1	22.2
SD	6.7	6.3	7.9	8.7

Note: Means and standard deviations are in raw score units.